

DETAILED ACTION

Drawings

1. The drawings were received on 11/09/09. These drawings are acceptable.

Allowable Subject Matter

2. The following is an examiner's statement of reasons for allowance:

Regarding claim 1, the prior art teaches: a nitrogen oxide removal equipment for removing nitrogen oxide contained in gas, comprising: a nitrogen oxide absorption means provided with an absorption unit for removing nitrogen oxide contained in said gas by passing said gas through a solid absorbent layers, said absorption unit comprising: an absorbent storage part surrounded by a boundary wall of a storage part, a bottom panel of a storage part, and an upper portion of an outlet side, and provided with said solid absorbent layers therein; and a plurality of low-profile unit bodies being placed vertically and adjacently and being provided with a gas rectification part in which gas is caused to pass through said solid absorbent layers, and said unit body comprising: an intake side surface; an outlet side surface disposed opposite to said intake side surface and provided with said upper portion of said outlet side and a lower portion of an outlet side; said storage part boundary wall disposed between said intake side surface and said outlet side surface; said bottom panel of said storage part disposed horizontally from a lower end of said boundary wall of said storage part to said upper portion of said outlet side;

3. However the prior art fails to teach or disclose or teach:

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a bottom of said rectification part disposed below a boundary of an outlet side, said boundary including a boundary between said upper portion of said outlet side and said lower portion of said outlet side; a bottom panel of said intake side extending from said intake side surface to said bottom of said rectification part; and a bottom panel of said outlet side extending from said boundary of said outlet side to said bottom of said rectification part, wherein a ratio of A:B is in a range of 1:1 to 1:10, where A represents a distance from a boundary defined by said bottom of said rectification part and said bottom panel extending to said outlet side to said bottom panel of said storage part while B represents a distance from said boundary to said outlet side surface, said boundary being placed near to said intake side surface while said bottom of said rectification part extending so as to be aligned to said boundary wall of said storage part of another unit body at said intake side.

4. Regarding claim 12, the prior art teaches: the nitrogen oxide removal equipment for removing nitrogen oxide contained in gas comprising:

absorption units provided with said plurality of low-profile solid absorbent layers constituting a nitrogen oxide absorption means; and

a gas rectification means that supplies said gas to a large-area side of said low-profile solid absorbent layers each provided with unit bodies in of said absorption trait.

5. The prior art fails to teach or disclose or teach: said unit bodies being placed vertically and adjacently; wherein said unit body comprises: an intake side surface; an outlet side surface disposed opposite to said intake side surface and provided with an upper portion of said outlet side and a lower portion of an outlet side;

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said storage part boundary wall disposed between said intake side surface and said outlet side surface; said bottom panel of said storage part disposed horizontally from a lower end of said boundary wall of said storage part to said upper portion of said outlet side; a bottom of said rectification part disposed below a boundary of an outlet side, said boundary containing a boundary between said upper portion of said outlet side and said lower portion of said outlet side; a bottom panel of an intake side extending from said intake side surface to said bottom of said rectification part; and a bottom panel of said outlet side extending from said boundary of said outlet side to said bottom of said rectification part, wherein a ratio of A:B is in a range of 1:1 to 1:10, where A represents a distance from a boundary defined by said bottom of said rectification part and said bottom panel extending to said outlet side to said bottom panel of said storage part while B represents a distance from said boundary to said outlet side surface, said boundary being positioned near to said intake side surface while said bottom of said rectification part extending so as to be aligned to said boundary wall of said storage part of another unit body at said intake side.

6. Regarding claim 14, the prior art teaches: the nitrogen oxide removal method for removing nitrogen oxide contained in gas, comprising: a removal step of removing nitrogen oxide contained in said gas by supplying said gas to a nitrogen oxide absorption means containing unit that contains a low-profile solid that absorbs and removes nitrogen oxide via a gas rectification means that selectively supplies said gas to a large-area side of said low-profile solid absorbents disposed in a unit body, said nitrogen oxide absorption unit comprises a plurality of said unit bodies, said unit

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bodies being placed vertically and adjacently; and a regeneration step of regenerating said nitrogen oxide removal function of said nitrogen oxide absorption unit, which is deteriorated in said removal step, by removing nitrogen oxide absorbed in said solid absorbents by a regenerant containing a basic or a reducing substance wherein said unit body comprises: an intake side surface; an outlet side surface disposed opposite to said intake side surface and provided with an upper portion of said outlet side and a lower portion of an outlet side; said storage part boundary wall disposed between said intake side surface and said outlet side surface; said bottom panel of said storage part disposed horizontally from a lower end of said boundary wall of said storage part to said upper portion of said outlet side; a bottom of said rectification part disposed below a boundary of an outlet side, said boundary containing a boundary between said upper portion of said outlet side and said lower portion of said outlet side.

7. The prior art fails to teach or disclose or teach: a bottom panel of an intake side extending from said intake side surface to said bottom of said rectification part; and a bottom panel of said outlet side extending from said boundary of said outlet side to said bottom of said rectification part, wherein a ratio of $A : B$ is in a range of 1: 1 to 1: 1 O, where A represents a distance from a boundary defined by said bottom of said rectification part and said bottom panel extending to said outlet side to said bottom panel of said storage part while B represents a distance from said boundary to said outlet side surface, said boundary being positioned near to said intake side surface

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while said bottom of said rectification part extending so as to be aligned to said boundary wall of said storage part of another unit body at said intake side.

8. Regarding claim 21, the prior art teaches The nitrogen oxide removal equipment for removing nitrogen oxide contained in gas, comprising: a nitrogen oxide absorption unit that absorbs nitrogen oxide containing low-profile solid absorbents that absorb and remove nitrogen oxide disposed in a unity body, said nitrogen oxide absorption unit comprises a plurality of unity bodies, said unity bodies being placed vertically and adjacently; a gas rectification means in selective fluid communication with a large-area side of said low-profile solid absorbents; a regenerant supply such that, when a nitrogen oxide removal function of said nitrogen oxide absorption unit is deteriorated, a regenerant containing a basic or reducing substance is supplied to said nitrogen oxide absorption unit, wherein said deteriorated removal function is regenerated by removing nitrogen oxide absorbed in said solid absorbents by said regenerant, and said unity body comprising: an intake side surface; an outlet side surface disposed opposite to said intake side surface and provided with an upper portion of said outlet side and a lower portion of an outlet side; said storage part boundary wall disposed between said intake side surface and said outlet side surface; said bottom panel of said storage part disposed horizontally from a lower end of said boundary wall of said storage part to said upper portion of said outlet side; a bottom of said rectification part disposed below a boundary of an outlet side, said boundary containing, a boundary between said upper portion of said outlet side and said lower portion of said outlet side.

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9. The prior art fails to teach or disclose or teach: a bottom panel of said intake side extending from said intake side surface to said bottom of said rectification part; and a bottom panel of said outlet side extending from said boundary of said outlet side to said bottom of said rectification part, wherein a ratio of A:B is in a range of 1 : 1 to 1: 10, where A represents a distance from a boundary defined by said bottom of said rectification part and said bottom panel extending to said outlet side to said bottom panel of said storage part while B represents a distance from said boundary to said outlet side surface, said boundary being positioned near to said intake side surface while said bottom of said rectification part extending so as to be aligned to said boundary wall of said storage part of another unit body at said intake side.

10. Regarding claim 25, the prior art teaches: the nitrogen oxide removal equipment for removing nitrogen oxide contained in gas, comprising: a plurality of absorption units that remove said nitrogen oxide contained in said gas by passing said gas through low-profile solid absorbent layers via a rectification.

11. However the prior art fails to teach a rectification means that introduces said gas into a large-area side of said low-profile solid absorbent layers, said absorption traits are provided with a plurality of space-saving-type nitrogen oxide absorption means laminated and integrated in a direction intersecting an extension direction of said solid absorbent layers.

12. Regarding claim 31, the prior art teaches: The nitrogen oxide removal equipment for removing nitrogen oxide contained in gas, comprising: a humidifying humidifier: and a nitrogen oxide absorption means that removes said nitrogen oxide contained in said

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gas by passing said gas through low-profile solid absorbent layers via a rectification means that introduces said gas into a large-area side of said low-profile solid absorbent layers, disposed in a unit body, said nitrogen oxide absorption means comprising a plurality of said unit bodies, said unit bodies being placed vertically and adjacently, and said unit body comprising: an intake side surface; an outlet side surface disposed opposite to said intake side surface and provided with an upper portion of said outlet side and a lower portion of an outlet side; said storage part boundary wall disposed between said intake side surface and said outlet side surface; said bottom panel of said storage part disposed horizontally from a lower end of said boundary wall of said storage part to said upper portion of said outlet side; a bottom of said rectification part disposed below a boundary of an outlet side, said boundary including, a boundary between said upper portion of said outlet side and said lower portion of said outlet side.

13. However the prior art does not disclose: a bottom panel of intake side extending from said intake side surface to said bottom of said rectification part; and a bottom panel of said outlet side extending from said boundary of said outlet side to said bottom of said rectification part, wherein a ratio of A : B is in a range of 1 : 1 to 1 : 10, where A represents a distance from a boundary defined by said bottom of said rectification part and said bottom panel extending to said outlet side to said bottom panel of said storage part while B represents a distance from said boundary to said outlet side surface, said boundary being positioned near to said intake side surface while said bottom of said rectification part extending so as to be aligned to said boundary wall of said storage part of another unit body at said intake side; and

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wherein said humidifier is integrated with said nitrogen oxide absorption means so as to overlap with said solid absorbent layers in a plane, and said gas after passing through said humidifier is supplied to said nitrogen oxide absorption equipment.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARLA HAWKINS whose telephone number is (571) 270-5562. The examiner can normally be reached on Monday-Friday 8:30- 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Marcheschi can be reached on 571-272-1374. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael A Marcheschi/
Supervisory Patent Examiner, Art Unit 1797

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Examiner
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